

New Readership Survey Coming!

YOUR FEEDBACK is requested to make changes to the disease bulletin! Due to a very low response rate from the survey inserted in the April 2006 issue of this Bulletin, a new readership survey is being developed. The new survey will consist of a letter with two short questions and a link to an optional online survey sent to randomly selected people from the bulletin mailing list. Feedback is vital to making decisions about the future of the disease bulletin. Unsolicited feedback is always welcome as well and can be sent to epimail@dhw.idaho.gov.

Upcoming Continuing Education Opportunity

Sexually Transmitted Diseases Update for Clinicians

Description: This course addresses the prevention, diagnosis and management of STDs through didactic and optional practicum training and is designed for clinicians with at least 6 months of clinical STD experience. CMEs are available.

Dates: August 29-30, 2007

Location: J.R. Williams Building
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Boise, Idaho

Call Annabeth Elliot at 208-334-6657 for more information.

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An electronic version of the Rules and Regulations Governing Idaho Reportable Diseases may be found at <http://adm.idaho.gov/adminrules/rules/idapa16/0210.pdf>

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Norovirus and Long-term Care Facilities

In 2006, 18 outbreaks attributed to *Norovirus* were reported to the Idaho Department of Health and Welfare from across the state. The majority of *Norovirus* outbreaks were in health care or assisted living facilities: eight of 18 (44.4%) were associated with residential care facilities, four (22%) were restaurant-associated, three (16.7%) were associated with hospital or rehabilitation facilities, and three (16.7%) were from other group gatherings. District health department staff worked closely with facility staff in carrying out disease investigations and providing recommendations for disease prevention.

Noroviruses are considered the leading cause of nonbacterial, self-limiting gastrointestinal illness worldwide. Although noroviruses are thought to cause over 50% of all foodborne outbreaks of gastroenteritis in the U.S. today, a significant burden also occurs in group settings such as long-term care facilities, where the route of infection is unclear but probably due to surface contamination and person-to-person spread, rather than through the foodborne route. Managing a *Norovirus* outbreak in a long-term care facility, due to the highly contagious nature of the virus, can be a monumental undertaking.

Noroviruses (formerly called Norwalk-like viruses) are a group of viruses that belong to the family *Caliciviridae* and are sometimes referred to as the 'stomach-flu virus' or the 'cruise-ship virus'. *Norovirus* infections, including outbreaks, are reportable in Idaho within one working day of identification. They can be spread by the fecal-oral route via person-to-person spread or via ingestion of fecal-contaminated food or water. These viruses may also spread via the droplet route from vomitus. In residential facilities transmis-

sion is thought to largely occur through hand transfer of the virus to the oral mucosa via contact with materials, fomites, and environmental surfaces that have been contaminated with either feces or vomitus. These viruses are highly contagious, requiring as little as 10–100 virus particles to cause illness. Human noroviruses belong to one of three genogroups (GI, GII, or GIV), further divided into 26 genetic clusters. The GII genogroup (17 genetic clusters described) is the predominant type seen by the Idaho State Bureau of Laboratories (IBL) and across the country. Over that last year or so, it appeared that a more virulent form of *Norovirus* was emerging nationwide, causing more infections in severity and number, particularly in group settings such as hospitals, nursing homes, and college dormitories. Recently, scientists discovered a new strain of *Norovirus*, GII.4, which appears to be responsible for this wave of intense gastrointestinal infections, often accompanied by a fever and lasting much longer than a typical norovirus illness (3–4 days). There appears to be a lack of cross-protection between all genetic clusters, therefore, a person could be infected with *Norovirus* more than once in their lifetime.

Symptoms of illness caused by *Norovirus* usually begin about 24 to 48 hours after ingestion of the virus, but they can appear as early as 12 hours after exposure. The symptoms, which may be severe, usually include nausea, vomiting, watery diarrhea, and some stomach cramping. In most people the illness is self-limiting with symptoms lasting for 1 or 2 days. Serious dehydration requiring medical attention may occur in some individuals. Infections may lead to death in immunocompromised persons. People infected with Norovirus are contagious

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from the moment they begin feeling ill to at least 3 days after recovery. Some people may be contagious for as long as 2 weeks after recovery. Therefore, it is particularly important for people to use good handwashing and other hygienic practices after they have recently recovered from norovirus illness.

Stool samples collected within the first 48 to 72 hours of illness are most useful for laboratory testing, although good results can be obtained by using RT-PCR on samples taken as long as seven days after symptom onset. Serology is not routinely used for a diagnosis of *Norovirus* infection. The IBL will test individuals associated with a suspected or confirmed outbreak; commercial laboratories should be used for the sporadic individual suspected to have a norovirus infection.

Controlling *Norovirus* in Long-term Care Facilities

Extensive contamination of environmental surfaces may play a role in prolonged *Norovirus* outbreaks in long-term care facilities and should be addressed in control interventions.

CDC states that patients with suspected norovirus infection should be managed with standard precautions with careful attention paid to hand hygiene practices. However, contact precautions should be used when caring for diapered or incontinent persons, during outbreaks in a facility, and when there is the possibility of splashes that might lead to contamination of clothing. Persons cleaning areas heavily contaminated with vomitus or feces should wear surgical masks as well.

Challenges with Disinfection

Quaternary ammonium compounds are often used for sanitizing surfaces or disinfecting large surfaces (e.g., countertops and floors). However, because noroviruses are non-enveloped virus particles, most quaternary ammonium compounds (which act by disrupting viral envelopes) will have no significant activity against them. Quaternary ammonium compounds which have proven efficacy against feline calicivirus (a proxy for human noroviruses) may be approved for use against *Norovirus* by

the Environmental Protection Agency. Approved product labels can be checked by entering the EPA registration number on the EPA’s Pesticide Product Label System Search website at <http://oaspub.epa.gov/pestlbr/ppls.home>.

Products with potassium peroxy-monosulfate also have proven efficacy against feline calicivirus and are better-tolerated by facility residents and staff than chlorine bleach. Such products that are approved by the EPA can be found by searching for potassium peroxy-monosulfate at <http://ppis.ceris.purdue.edu/htbin/epachem.com>.

Chlorine bleach should be applied to hard, non-porous, environmental surfaces at a minimum concentration of 1000 ppm (generally a dilution 1 part household bleach solution to 50 parts water). In areas with high levels of soiling and resistant surfaces, up to 5000 ppm chlorine bleach may be used.

More information on norovirus in healthcare facilities is available through the CDC web site: http://www.cdc.gov/ncidod/dhqp/id_norovirusFS.html.

Periodontal Disease and Pregnancy

THE MAJORITY OF RECENT STUDIES, especially those carried out in economically disadvantaged populations, suggest that periodontal disease is associated with increased risk of adverse pregnancy outcomes such as preterm birth and low birthweight. This has led to interest in testing interventions to see if these outcomes could be improved.

A study published in the November, 2006, New England Journal of Medicine of women with periodontal disease during pregnancy failed to show an impact from root planing and scaling during pregnancy on the rates of preterm birth, low birth weight, fetal growth restriction, or preeclampsia. Despite this disappointing outcome, dental care was shown to be safe in pregnancy, and an accompanying editorial maintains that future studies may show that periodontal treatment can help reduce other adverse outcomes including “late miscarriage, early stillbirth, and spontaneous preterm birth before 32 weeks, rather than all preterm births before 37 weeks.” The American Dental Association continues to recommend good periodontal care for pregnant women. Another ongoing study includes 1,800

women from a broader range of socioeconomic classes, as well as women with less severe periodontal disease. Results from that study are expected within the next two years.

According to the 2005 Idaho Pregnancy Risk Assessment Tracking System, a survey of women who have recently given birth, only 44% of mothers surveyed reported receiving information about the importance of dental care during pregnancy from their prenatal care provider. Of these 44%, 58% received routine dental care during their pregnancy. More than half of the surveyed mothers who did not seek routine dental care during pregnancy reported that they did not have the money or insurance needed to pay for the visit and 20% felt that they did not need a dental visit. Other reported reasons for not seeking dental care during pregnancy included busy schedules and lack of time, fear about baby’s safety, and time since last dental visit was less than one year.

For more information and practice guidelines on oral health care during pregnancy: <http://www.cdhp.org/Projects/PPMCH.asp>.

Scarlet Fever in Idaho Draws Attention to Group A *Streptococcus* (GAS) Disease

Local Clusters

IN FEBRUARY, LOCAL MEDIA ATTENTION focused on clusters of scarlet fever in two Idaho schools. An elementary school in Jerome had an unreported number of students out of school with “scarlet fever” while a charter school in Garden City closed its doors for a week when half of the teachers and nearly 20% of the students were sick, many with “strep throat” and “scarlet fever.” This attention has brought increased public attention to scarlet fever and other Group A *Streptococcus* (GAS) disease.

GAS

GAS, or *Streptococcus pyogenes*, is a ubiquitous, gram positive, hemolytic bacterium that causes primary mucosal and cutaneous infections and can lead to invasive disease and/or autoimmune-mediated post-infection sequelae including acute rheumatic fever, glomerulonephritis, reactive arthritis and neuropsychiatric disease. In Idaho, only invasive GAS infections and streptococcal toxic-shock syndrome are reportable to public health. Non-invasive GAS disease, however, is much more common. The most common non-invasive GAS diseases are acute pharyngitis

(“strep throat”) and isolated impetigo; scarlet fever is a rare, non-invasive GAS disease. Since these non-invasive GAS infections are not reportable, little data exist illustrating trends in GAS infection in Idaho.

Scarlet Fever

Scarlet fever is an exotoxin-mediated, generally self-limited rash illness that is most often associated with acute GAS pharyngitis and less commonly with other GAS infections. Nearly all cases of scarlet fever are in children less than 18 years old. The rash begins 12–48 hours after the onset of fever and sore throat, appearing as patches of erythema on the neck and trunk. The rash evolves over the next 24 hours to include punctuate papules on an erythematous base, giving the skin a “sandpaper-like appearance.” Characteristically it is most prominent in body folds and spares the face, including a region of perioral pallor. A marked feature of scarlet fever is the characteristic desquamation of rash-affected areas approximately one week following resolution of the rash. Scarlet fever, itself, is not independently associated with greater risk of post-streptococcal sequelae and is worked-up and treated like acute GAS pharyngitis.

GAS Pharyngitis

15–30% of acute pharyngitis in children is attributable to GAS, while only 5–10% of acute adult pharyngitis is caused by GAS. GAS pharyngitis is most often spread by person-to-person contact but can be spread via contaminated food products. Concerns about acute rheumatic fever, invasive complications and spread of GAS infection to others inform clinical guidelines recommending all cases of acute GAS pharyngitis be treated with an appropriate antibiotic course.

Since clinical criteria alone have been shown to overestimate GAS pharyngitis, only confirmed cases should be treated, avoiding unnecessary overuse of antibiotics. While pharyngeal culture is considered the gold standard, rapid direct antigen tests (“rapid strep tests”) are commonly used in outpatient settings. Direct antigen tests have a specificity of 90–95% and a sensitivity ranging from 60–90%, depending on the product and user. Due to the wide range of sensitivity, throat culture is recommended for pediatric cases in which clinical suspicion exists but the direct antigen test is negative. Throat culture following a negative

direct antigen test, however, is not recommended in adults due to both the lower incidence of GAS pharyngitis and lower risk of acute rheumatic fever following GAS pharyngitis in adults.

Testing of asymptomatic persons in non-outbreak settings is not recommended due to the high rate of asymptomatic GAS pharyngeal carriage. Repeat testing following treatment is also not recommended except for patients at particularly high risk for rheumatic fever or who remain symptomatic. The 2002 IDSA guidelines offer more comprehensive information about diagnosis and treatment of GAS pharyngitis.

GAS M-Typing at the Idaho State Laboratory

There is currently no available direct antigen kits test for M protein, the primary virulence factor of GAS. The Idaho Bureau of Laboratories (IBL) offers M-typing and would like specimens from both non-invasive and invasive GAS outbreaks to identify and exam causative GAS strains. IBL can be reached at (208) 334-2235.